Ont. Transportation, Royal Commission on
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LETTER OF TRANSMITTAL

Max M. Evans, B.A.Sc. M.S.A.E.
Consulting Engineer
Past Chairman - Canadian Section
Society of Automotive Engineers

410 Mason Street,
Oshawa, Ontario,
June 13th, 1938.

The Automotive Transport Association
of Ontario,
83 Church Street,
Toronto, Ontario.

Gentlemen:-

In compliance with your request, I have studied the memorandum prepared by Mr. C.E. Hastings for the Railway Association of Canada, and presented to the Ontario Royal Commission on Transportation.

Frankly, I cannot agree that if the suggestions recommended by Mr. Hastings were enacted, highway safety would be materially improved. It is my opinion that the suggested regulations are designed to achieve but one end, viz: the elimination of the railway's highway competitors.

In the short time at my disposal I have prepared a memorandum showing in detail my reasons for this belief, same is enclosed herewith.

Yours very truly,

(Signed) Max M. Evans.

It would appear that Mr. Hastings, relying solely on his own experience has arrived at his own conclusions which are at variance with those of the Department of Highways, the Ontario Safety League, manufacturers of automotive equipment, insurance companies and the driving public generally as to the frequency and causes of highway accidents in which commercial vehicles are affected.

From my experience as an automotive engineer, active in the industry since 1922, and from a careful study of the facts, it is apparent that the majority of regulations which he suggests would not only have no effect in improving highway safety, but would prohibit the use of nearly all the commercial vehicles now on the highway. Those allowed could not be operated because of the impossible restriction as to payload. I refer particularly to his suggestions having to do with maintaining of speed on grades, maximum overall width, etc.

In the light of best existing legislation, safety statistics and common sense, one can only come to the conclusion that Mr. Hastings has been lead away by excess of zeal for safety or is endeavoring to have legislation enacted whose sole purpose would be to prohibit trucks from the highways to the benefit of the railway companies.

It is a matter of common knowledge that unnecessary and unenforcible legislation defeats its own purpose and leads to dissatisfaction, hardship and litigation. I strongly suggest that no legislation be recommended without much more thorough investigation and knowledge of the facts than lies behind the brief of the Railway Association, inasmuch as it is apparent that some of the suggestions are properly covered in existing legislation, some are unwarranted and some are practically impossible of compliance.

Refuting the Railway Association brief the following is submitted:

Drivers.

After elaborating on his experience in the study of motor vehicle accidents, their causes, results, etc., Mr. Hastings reached certain conclusions which are responsible for the following statement:

> "but as a general rule I have been impressed with the fact that the truck drivers are not a proper type of citizen to be entrusted with the operation of any piece of machinery where one miscalculation, or the exercise of poor judgment on one occasion

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In the light of best existing legislation, safety statistics and common sense, one can only come to the conclusion that Mr. Hastings has been led away by anyone of zeal for safety or is endeavoring to have legislation enacted whose sole purpose would be to prohibit trucks from the highways to the benefit of the railway companies.

It is a matter of common knowledge that unnecessary and unenforceable legislation defeats its own purpose and leads to dissatisfaction, hardship and vilification. I strongly suggest that no legislation be recommended without much more thorough investigation and knowledge of the facts than lies behind the brief of the Railway Association, inasmuch as it is apparent that some of the suggestions are properly covered in existing legislation, some are unwarranted and some are practically impossible of compliance.

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After elaborating on his experience in the study of motor vehicle accidents, their causes, results, etc., Mr. Hastings reached certain conclusions which are responsible for the following statement:

"But as a general rule I have been impressed with the fact that the truck drivers are not a proper type of citizen to be entrusted with the operation of any piece of machinery where one misadjustment, or the exercise of poor judgment on one occasion

> or lack of alertness might, and frequently does bring injuries and death to innocent people."

Mr. Hastings endeavors to justify this conclusion by claiming that wages and long hours of employment are the cause of the calibre of truck drivers being below that which should be required. It is apparent that Mr. Hastings' attack which is both scurrilous and vindictive, is the result of lack of knowledge of the subject which he attempts to handle and his wholesale condemnation of the man engaged in this line of endeavor is unjustifiable.

May I quote remarks of Mr. A. G. Partridge, made at the Annual Safety Award Meeting (April 25th,1938) of the Ontario Safety League, of which he is President, in awarding safe drivers medals and certificates

> "There are 2,250 drivers affiliated to the Ontario Safety League who are entitled to receive medals and merit certificates to-night granting a conservative average of 15,000 miles per year for each driver. It means that the awards made here to-night represent 78,870,000 miles of safe driving on the streets and highways of Ontario."

Prominent safety engineers and adjusters for insurance companies covering the entire province of Ontario quote many instances of the extraordinary presence of mind exhibited by truck operators averting serious accidents. There also seems to be a universal opinion that the truck drivers as a rule are a healthy, strong, good-humoured type of citizen, keen and alert and quite amenable to both instruction and advice. They more than observe all rules of the road and are unfailingly courteous.

The Department of Highways is in a position to judge the responsibilities which cause accidents I am sure and it will be found that the average driver of a commercial vehicle is superior to the general run of passenger car drivers. Mile for mile he is a better driver because of his experience and carries a lower accident rate. One would not in justice make any comparison between the days driving by a commercial vehicle operator with that of the average passenger car driver. The former is trained by constant practice to driving distances without fatigue whereas to drive a similar distance would exhaust a passenger car operator particularly if he was not accustomed to long distance driving. Of course, no company engaged in truck transportation or in other commercial enterprises with the heavy investments necessary to motorize equipment could afford to retain on its payroll accident-prone drivers. Drivers involved in reckless

driving charges have their license suspended automatically. The statement that operators actually fall asleep at the wheel appears to be based on his own experience. Accident facts published by the Accident Division of the Department of Highways, in 1937 show that in the period from 1931 to 1936 only .8% of all highway accidents were due to extreme fatigue.

In his preamble or explanatory portion he suggests that no operator of a truck should be less than 25 years of age. From experience no such regulation should be considered for a moment as there are men 18 years of age operating trucks with as good common sense as any man of 30 and just as reliable. There is no more danger of a man of 18 driving a truck than there is for the same man to drive a motor car.

Drivers of Public Commercial Vehicles are now required by law to be at least 21 years of age and there is nothing but Mr. Hastings' personal opinion to suggest that this be increased.

Brakes.

> "1. That the requirements of the regulations respecting brakes on motor vehicles where they now require that a vehicle at 20 miles per hour shall be capable of stopping in 50 feet, should be altered so that this distance of 50 feet should read 30 feet."

Mr. Hastings, strangely enough, in his capacity as insurance adjustor does not appear to be familiar with the present Ontario regulations respecting brakes. Regulations, issued by the Department, require that brakes must be adequate to stop a vehicle or vehicles when travelling 20 miles per hour in 40 feet, whereas his brief states that the old stopping distance of 50 feet from 20 miles per hour has never been changed. Section 11 of the Highway Traffic Act (RSO. 1937 C. 288) Item "D", gives the Department of Highways authority to issue regulations as to the method of testing brakes and the stopping distance required. There is no doubt that the Department is as interested in safety as Mr. Hastings and will insist that brakes be as efficient as is required for safety.

Suggestion 1 is more severe than required and necessary in view of the fact that the Department has power without further legislation to set the stopping distance at whatever figure it feels is consistent with safety.

> "2. Every truck, tractor, semi-trailer and trailer shall be equipped with brakes on all wheels that are normally in contact with the road surface (except that this section shall not apply to semi-trailers of a gross weight of less than 3,000 pounds)."

Such legislation is superfluous in view of Item "C", Section 11 of the Highway Traffic Act (RSO. C. 288)

> "Every trailer or semi-trailer having a gross weight of three thousand pounds or more shall be equipped with brakes adequate to stop and to hold such vehicle."

Whether or not brakes on all road wheels are necessary to comply with this requirement should be a matter for Departmental discretion. No further legislation is required.

> "3. That the design shall be such that the brakes on the wheels of the rearmost axle of a combination of vehicles, shall commence to act in synchronism or before the other brakes on the combination of vehicles, and that the brakes on the wheels of the rearmost axle shall develop their maximum braking effort at a faster rate of speed than those brakes acting on wheels forward of them."

Jacknifing may be caused by failure of the brakes on the trailer or semi-trailer but brakes maintained in good working order as required by the present Act will not allow or precipitate this condition. This suggestion calls for brakes with such design and adjustment that truck, trailer and brake manufacturers are not in a position to supply them and they are unanimous that the requirement is theoretical rather than practical. Faulty design or adjustment of such a brake would cause great danger from the possibility of throwing the trailer into a skid particularly on slippery pavement.

> "4. Where a vacuum or air pressure braking system is employed, a suitable warning device should be mounted in such a position as to be readily visible to the driver of the vehicle that would indicate to him the existence of any leakage or impending failure."

With reference to a device on the instrument panel to indicate leaking of air or vacuum. Air pressure type brake systems are now so equipped with a gauge more as an indication of the amount of air pressure than as a safety device.

Vacuum to operate a vacuum type brake is automatically supplied by the engine and loss of vacuum is encountered so rarely that such an indicator, easily and cheaply applied, has not been felt to be warranted.

> "5. The braking mechanism shall be so designed that the breaking away of a trailer or semi-trailer from the towing vehicle shall result in

> the brakes of the trailer or semi-trailer automatically being applied and means shall be provided to maintain the application of such brakes under such circumstances for a period of at least 15 minutes."

Section 17, Item 3 of the Highway Traffic Act requires that trailers have two separate means of attachment so constructed and attached that failure of one will not permit trailer to become detached, In view of this, legislation covering automatic braking in case both attaching means fail, seems to be superfluous.

The air pressure type of brake is the only one which will meet this requirement. If this suggestion were accepted it would provide a monopoly to the one company manufacturing air pressure type brakes.

Vacuum type brakes, now almost universally used have proven satisfactory, safe and efficient.

> "6. The braking system shall be so designed that the cutting in two of any one element of the operating mechanism or the non-rotation of the motor shall not leave the vehicle or combination of vehicles without brakes effective on at least half the number of wheels of the vehicle or vehicles."

Remarks under Suggestion 5 above also apply in this case.

Tires.

> "7. No truck, tractor, semi-trailer or trailer shall be operated if one or more of its tires are worn smooth, and so that they do not expose an adequate non-skid surface on the tread and no re-tread tire or "second" shall be used on any such vehicle."

Danger from blow-outs is not confined to tires with worn treads. Tires with very little mileage that have been abused through under-inflation, curb-scraping, etc. are more subject to failure than tires with a large mileage which have been properly checked and cared for. No one has any objection to the prohibiting of tires worn smooth.

Truck owners generally maintain, inspect and keep a record of their tires so as to get the maximum safe mileage. As a result, when tires are worn beyond the safe point from a non-skid angle in a great many cases the carcass is still perfectly sound. Retreading of such a tire when carried out properly by a reputable concern delivering a guarantee is not a practice which should be legislated against particularly in view of the fact that retreaded tires are usually used in lighter city service and are good for thousands of absolutely safe miles.

Selling of "seconds" by the tire companies is a practice which has been abandoned for some years. Tires which the tire companies are not prepared to guarantee are destroyed by them.

Lights.

"8. A. Every truck shall be equipped with the following lights:

On the front: 2 headlamps,
2 clearance lamps, one on each side.
On the side: 1 reflector at or near the rear
On the rear: 2 tail lamps, 2 clearance lamps, one on each side, and a stop light, in addition to 2 reflectors, one on each side.

B. Every tractor shall be equipped with:

On the front: 2 headlights, one on each side,
2 clearance lights, one on each side.
On the side: 2 side marker lamps, one on each side of the cab and
1 reflector at or near the rear.
On the rear: 2 tail lights.

C. Every trailer and semi-trailer shall be equipped with:

On the front: 2 clearance lights, one on each side
On the sides: 4 side marker lamps, one near the front and one near the rear of each side.
On the rear: 2 tail lights, one on each side,
2 clearance lights, one on each side
a stop light, and
2 reflectors, one on each side."

All trucks are now required to carry a tail lamp and clearance lamps or reflectors. (Highway Traffic Act, Section 10)

While the majority of accidents in which passenger cars run into the rear of trucks or trailers are undoubtedly due to the negligence of the driver of the passenger car, truck owners have no objection to any reasonable revision in regulations regarding tail,stop and clearance lights. The requirement of two tail lamps on a tractor seems, however, to be unreasonable.

Speed on grades:

"9. No truck or tractor trailer combination shall be so loaded as to render the vehicle or combination of vehicles incapable of maintaining a speed of at least 30 miles per hour on a 5% grade."

It would not appear that Mr. Hastings had studied this subject sufficiently to realize the far-reaching effects of such a regulation as he proposes, particularly in view of the very doubtful benefit in the way of safety. This suggestion, if made law, would prohibit the use of highways to all but a very small percentage of highway trucks and tractor-trailer combinations. As an example let us consider an actual tractor and semi-trailer unit now being operated in transport work which is representative of the best equipment on the highways or available from the manufacturers. This combination fully loaded within the requirements of the Act is capable of maintaining a speed of approximately 10 miles per hour on a 5% grade.

However, to comply with the regulations as suggested, 30 miles per hour on a 5% grade, the engine size would have to be increased from 298 cubic inches displacement to approximately 930 cubic inches displacement, or an engine roughly three times the size would be required.

To meet this requirement without engine change, would mean that no payload could be carried since all the engine power would be needed to maintain a speed of 30 miles per hour on a 5% grade for the tractor and trailer without load.

The same applies to trucks to a slightly lesser degree. In this case to meet the requirement, engine sizes would have to be doubled or the payload decreased to practically nothing. This restriction in payload would make it an economic impossibility to operate trucks on the highway.

Further, if engine sizes were increased to maintain such speeds on steep grades their speed on the level and on gentle grades would be such as to make it difficult and dangerous for passenger cars to pass.

For the information of the Commission this matter has been discussed by safety bodies in the United States. A regulation requiring a grade ability of 20 miles per hour for a 4% grade (roughly one half as severe as that suggested by the Railway Association) was imposed by one state but enforcement was abandoned when it was found that available equipment could not comply.

Overall Length.

> "10. No vehicle which exceeds 26 feet in length shall draw a trailer or semi-trailer on any highway, and no trailer or semi-trailer shall be attached to any truck or tractor unless the combined overall length is less than 35 feet, except that this shall not apply to trailers constructed and normally used for the conveyance of indivisible loads of exceptional lengths."

The actual facts, insurance and safety statistics, do not indicate that the present allowable length tends to cause accidents.

90% of highway transports operate at night when the traffic density is very light and oncoming traffic rarely makes it difficult to pass. The presence of oncoming traffic, if present, is clearly indicated far ahead by its headlights.

Regulations in the neighbouring states of Michigan and New York which are extremely safety-minded and whose traffic density is the highest in the world are the same as those of Ontario in respect to the allowable length.

The suggested regulation would call for the withdrawing from use of the majority of the present transport semi-trailers at tremendous cost to the present owners.

Overall Width.

> "11. The overall width of any truck, tractor, semi-trailer or trailer shall not exceed 7 feet."

The present allowed over-all width of 8 feet is recognized as safe and is standard in every state of the Union except two. The State of Georgia only, in which highways are notably narrow, winding and poorly surfaced and the country mountainous requires a maximum width of seven feet. This regulation is one which is obviously suggested solely in a desire to reduce the load carrying ability of transport trucks.

Trains.

> "12. Not more than two vehicles shall be coupled together on the highway at any one time except in cases of towing a disabled unit."

Because Mr. Hastings has seen one or more second trailers weaving on the road does not mean that second trailers are inherently unsafe.

The regulation requiring two means of attachment and separate braking systems together with modern developments in attaching means, and brakes, make this type of hook-up quite safe and prevent the weaving which may have been noticed in isolated instances.

Inspection.

> "13. No truck or tractor trailer combination shall be operated upon any highway unless it is carrying with it a certificate of road worthiness issued by a duly appointed inspecting officer within a period of not more than one month."

Public safety demands that all vehicles operated on the highways should be mechanically fit. As a matter of established routine transport operators now make frequent examinations of their equipment and correct immediately any mechanical defects that are discovered.

The inspection of all trucks once a month would involve, allowing one man, one hour to inspect one truck, 380 inspecting officers doing this work alone to cover the 76,000 trucks registered in Ontario.

Such a regulation would seriously tie up transportation facilities owing to delay in waiting for inspection, etc.

In my opinion the present regulations are adequate in that they allow inspection at the discretion of the enforcing authorities.

ONTARIO ROYAL COMMISSION ON TRANSPORTATION.

QUALIFICATIONS OF C. E. HASTINGS, ESQ.

Graduated University of Toronto as B.A.Sc. Post Graduate Work at Harvard.

Number of years practical experience as Mechanic in garages, factories, etc; During the War served with mechanical transport for 4 years; being second in command of the Mechanical Transport for Canada.

Since the War in practice as Automotive Engineer and Adjuster; has been retained on many occasions by the Crown, Police Departments, Municipalities, Federal and Provincial Governments in connection with various problems in volving motor cars and trucks and by many legal firms in connection with the prosecution or defence of civil or criminal matters in which motor vehicles have played a part.